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PRELIMINARY CHARACTERIZATION OF THE VECTOR OF VERRUGA, PHLEBOTOMUS VERRUCARUM SP. NOV.

By CHARLES H. T. TOWNSEND, Lima, Peru

Although the transmission of verruga by means of the species below described has not yet been accomplished, it is now practically certain from the entomological standpoint, considered in connection with the very peculiar conditions of the verruga zones, that it is the vector, if not the true intermediary host, of the causative organism of the disease. Its characterization in this connection is therefore called for.

Phlebotomus verrucarum, new species.

Color of fresh specimens pale fuscous-pallid, more or less whitish to watery, invisible on wing by artificial light; balsam mounts bright very dilute tawny-yellowish, faintly shaded with fuscous on head, mesoscutum, and abdominal segments; specimens in fluid pallid-tawny; dried specimens pallid-fuscous with a lens, appearing more deeply fuscous with the binocular, especially with the higher magnifications, legs silvery, wings whitish or silvery except the bordering fringe which appears blackish in direct lights.

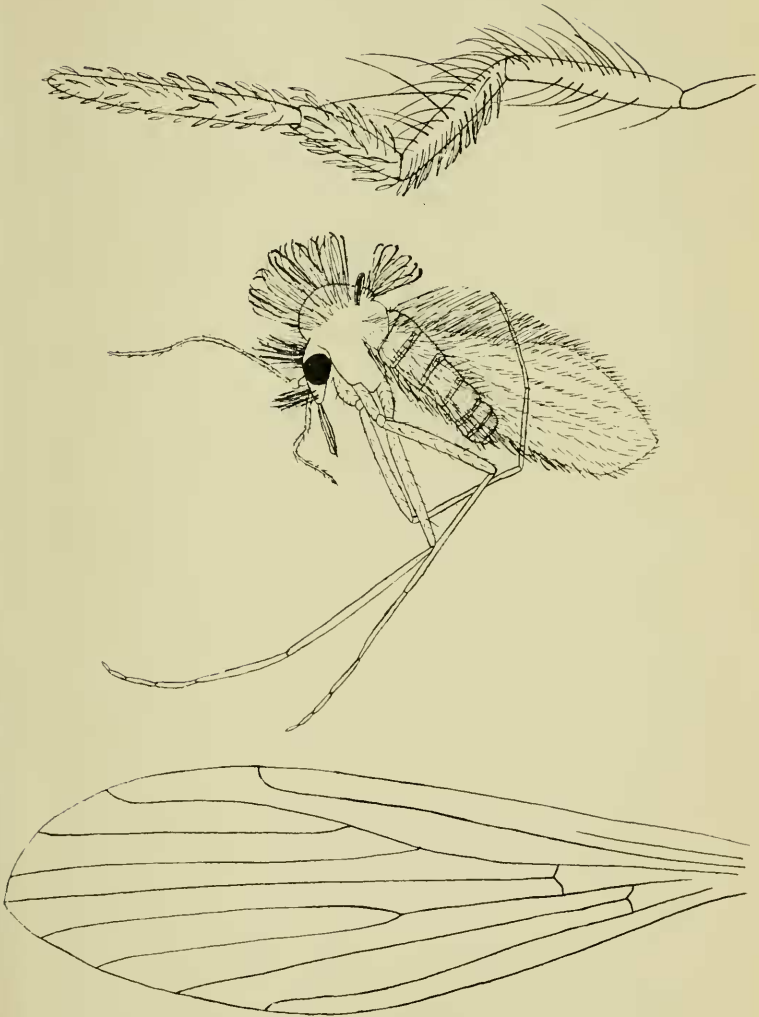
Hairs brownish to blackish in balsam mounts, dry appearing tawny to brownish, those of posterior wing fringe varying from black to white according to lights. Whole mesoscutum thickly set with long erect curved coarse hairs, these being as long as head including clypeus but excluding proboscis. Scutellum with a thick bunch of similar hairs of same length, segregated from those of mesoscutum. Hairs of clypeus and vertex in two separate bunches, those of latter more numerous, all erect and not quite so long as those of thorax. Hind edge of second abdominal seg-

ment with erect hairs about same length as those of clypeus and vertex, the coxæ also with some hairs of about same length. Third to eighth abdominal segments with bunches of shorter hairs on posterior edge, not one-half length of those of thorax, suberect to erect, showing best on tergum but also extending on sides and venter. Hypopygium of both sexes with equally long similar hairs.

Wing fringe is longest near base on posterior border, in region of anal angle of wing, these hairs being straight, very thickly set, as long as those of thorax or somewhat longer, but very much finer, whence they gradually decrease in length to tip of wing, being continuous to tip in the single male, and usually giving out just before tip in female. Fringe of costa longest at base, being here about as long as clypeal hairs and about as coarse, thence shortening rapidly to wing tip, or more or less uniformly shorter on middle half of costa, the hairs of wing veins in general about as long as those on middle of costa. Tibiæ with a few regularly placed very fine suberect hairs, and many shorter appressed flattened scale-like hairs. Antennæ with joints rather finely hairy to end, but without geniculate or other spines. Palpi with coarser and longer hairs on joints 2 and 3, joint 3 also showing many shorter curved thickened hairs closely set on outer surface, joints 4 and 5 showing only these thickened hairs slightly shorter and flattened, gradually shortening toward tip of joint 5 and all subappressed.

Antennæ composed of fourteen joints besides the two swollen scape joints, the first flagellar joint very elongate. Palpi composed of five segments, their average formula in female being approximately 5-10-12-7-16, but some slight variation has been noticed from these proportions. The fifth joint appears to be composite, but no definite sutures are visible. The mouth parts agree closely with those figured by Newstead for *P. papatasi*. Venation normal. The above description applies equally to both sexes, except that palpi of male seem more thickly haired and last joint is not quite so elongate; the proboscis of female nearly equals head plus clypeus, that of male being only about two-thirds such length.

Hind tibiæ of female very elongate, longer than middle tibiæ, front tibiæ still shorter than middle ones, but all elongate. Front and middle metatarsi of female about equal, the hind ones slightly longer. Legs of male not so elongate as those of female, the tibiæ being shorter, hind and middle tibiæ about equal, hind metatarsi longer than middle ones. Male hypopygium in general similar to that of *P. perniciosus* as figured by Newstead. Intromittent organ of penis widely exerted.



Phlebotomus verrucarum Towns.